Some studies have indicated that root-derived compounds produced by tall fescue associated with the ergot alkaloid-producing endophyte may contribute to tall fescue resistance to nematodes. However, recent studies indicated that presence or absence of the endophyte status did not influence suppression of root-knot nematode reproduction on tall fescue. Consequently, planting of the endophyte-friendly tall fescue cv. Jesup (Max-Q) as a preplant ground cover was recently recommended as a sustainable approach for assisting in management of plant-parasitic nematodes on peach trees in the southeastern United States. While presence of the endophyte may not be essential for nematode management, the additional beneficial characteristics provided by the endophyte association may assist in providing enhanced vigor of the ground cover.

O39.009 Soil microbial communities and their relation with soybean *Rhizoctonia* root rot

W.S. Shen[1, 2], H.H. Wei[2] and B. Liu[2]
[1]Department of Environmental Science and Engineering, Nanjing Normal University, No. 1 Wenyuan Road, Nanjing 210023, P. R. China; [2]Department of Plant Pathology and West Central Research and Education Center, University of Nebraska-Lincoln, 402 W State Farm Road, North Platte 69101, NE, United States
Email: wsshen@njnu.edu.cn; bliu5@unl.edu

Rhizoctonia root rot, caused by *Rhizoctonia solani*, is a major soilborne disease of soybeans in Nebraska, the United States. The diseases cause seed rot and damping-off of soybean, and reduce the yield up to 50% or greater. Soil microbial communities play an importance role in suppressing soilborne plant pathogens. So far, little is known about the relationship among soil microbial communities and *Rhizoctonia* populations. Populations of soil total bacteria, *Pseudomonas*, total fungi, *Fusarium*, *Pythium*, *Rhizoctonia* and *Trichoderma* were characterized using culture-dependent (media culturing) and culture-independent (DGGE) methods from a soybean field in Nebraska. Results showed that the populations of soil total fungi and *Rhizoctonia* were significantly higher whereas beneficial *Pseudomonas* were significantly lower in soils with diseased plants and also on diseased soybean roots compared with the healthy soils and roots. There is no significant difference in *Pythium* and *Trichoderma* populations in diseased soils and healthy soils. Moreover, *Rhizoctonia* populations have a positive correlation with *Fusarium* populations and negative correlations with *Pseudomonas* populations. Soil microbial diversity using DGGE is in progress. This research provides important information for understanding the relationship between soilborne plant pathogens and soil microbial diversity, and the result will lead to more informed disease management of seed rot and damping-off of soybean.

O39.010 Enhancement of Rhizoctonia-disease suppressive soils

J. Postma[1], M.T. Schilder[1] and B. Hanse[2]
[1]Plant Research International, Postbus 69, 6700 AB Wageningen, the Netherlands; [2]IRS, Postbus 32, 4600 AA Bergen op Zoom, the Netherlands
Email: joeke.postma@wur.nl

Rhizoctonia solani is a soil-borne fungal pathogen, which causes worldwide serious losses in many different agricultural crops. *R. solani* AG2.2IIIB is an economically important problem in sugar beet with an estimated affected area of 70,000 ha in Europe (http://www.kwsbenelux.com). Enhancement of soil suppressiveness against damage caused by this pathogen would be a profitable strategy for farmers to control Rhizoctonia diseases without applying pesticides. Addition of compost or other forms of organic matter is often used to stimulate disease suppression of soil-borne pathogens, but this strategy is not reliable to control Rhizoctonia, since positive as well as negative results have been reported. Previous research has shown that three closely related species of *Lysobacter,* with the capacity to inhibit *Rhizoctonia* growth *in vitro*, were present in different *Rhizoctonia* suppressive soils. Therefore, we focussed on stimulation of these bacteria, which are known for their capacity to degrade various biomacromolecules. Repeated experiments in bioassays with sugar beet seedlings showed that chitin, yeast, as well as several animal by-products enhanced the indigenous *Lysobacter*-populations in the soil, as well as disease suppression of *R. solani* AG2.2IIIB. Feather meal and hoof meal, which were the cheapest products, were very effective and can also be applied as fertilizer. A first field experiment with chitin, feather meal and hoof meal applied during sowing, showed positive results on the yield of sugar beet. Efficacy testing in the field should be repeated. Although we detected a correlation between the *Lysobacter* populations and disease suppression, the mechanism of suppressiveness is not yet understood.

O39.011 Identifying new sources of resistant in wheat germplasms for dryland crown rot caused by *Fusarium culmorum*

G. Erginbas-Orakci, A.A. Dababat, A. Morgounov and H.J. Braun
CIMMYT/Global Wheat Program, Ankara-Turkey
Email: g.erginbas@cgiar.org

The dryland Crown Rot (CR) caused by *Fusarium* species is among the most significant constraints facing wheat production especially in dryland areas and wheat monoculture cropping system. The most commonly reported causal pathogens are *F. culmorum*, *F. pseudograminearum* (formerly *F. graminearum* group 1). It was reported in West Asia, North Africa (Egypt, Tunisia, and